Commentary

The Impact of the Economic Crisis and the US Embargo on Health in Cuba

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ABSTRACT

Objectives. This paper examines the combined effects of a severe economic decline since 1989 and a tightening of the US embargo in 1992 on health and health care in Cuba.

Methods. Data from surveillance systems for nutrition, reportable diseases, and hospital diagnoses were reviewed. These sources were supplemented with utilization data from the national health system and interviews with health leaders.

Results. Changes in Cuba include declining nutritional levels, rising rates of infectious diseases and violent death, and a deteriorating public health infrastructure. But despite these threats, mortality levels for children and women remain low. Instead, much of the health impact of the economic decline of Cuba has fallen on adult men and the elderly.

Conclusions. To be consistent with international humanitarian law, embargoes must not impede access to essential humanitarian goods. Yet this embargo has raised the cost of medical supplies and food. Rationing, universal access to primary health services, a highly educated population, and preferential access to scarce goods for women and children help protect most Cubans from what otherwise might have been a health disaster. (*Am J Public Health.* 1997; 87:15–20)

Introduction

The US embargo against Cuba is the longest embargo in modern history.[1–4] The direct effects of embargoes are on trade, aid, and domestic economic activity. Since the dissolution of the Soviet bloc in 1989, the 60% decline in Cuba's gross domestic product is one of the steepest ever recorded.[1] The impact of embargoes and sanctions on health, however, is indirect and thus difficult to isolate. It has been widely postulated that such economic crises have a negative impact on the affected population's health and well-being,[5–9] but statistical evidence has generally been lacking or contradictory.[10] In fact, many of the morbidity and mortality changes ascribed to embargoes may actually be explained by wars or other social disruptions with which they share a temporal association.[11,12] With high-quality data[13–17] from a health system that allows universal access, Cuba provides a unique opportunity to examine the effects of an embargo on the health of the people it targets.

We examined trends in health and health care in Cuba during the 1990s. Only changes in the cost of medicine and the unavailability of medicines produced in the United States can specifically be ascribed to the embargo. However, there are temporal trends that further suggest that the embargo contributes to increasing health threats and the decline of some health indicators. While not the sole cause of these ills, the embargo is shown to make the supply of essential goods more costly, more difficult, and more time-consuming to procure and maintain.

Background

The US embargo against Cuba began in 1961 after the 1959 Cuban revolution.[18] At that time, it had a limited impact because of Soviet assistance and equalitarian distribution policies. During the following 3 decades, 70% to 90% of Cuba's international trade was with the former Soviet bloc[19] (also D. Vallinas, Cuban vice-minister of economics, personal communication, February 1994), and health and other social indices improved dramatically.[20–24]

From 1965 to 1975, the economy grew at an annual rate of about 2%. Starting in 1975, the embargo was modified to permit trade with US subsidiary firms in other countries during the period of cold war detente. From 1975 to 1989, the economy grew at an annual rate of about 4%. Dissolution of the Soviet Union and the COMECON (Community for Economic Cooperation) trade group in 1989 greatly weakened the Cuban economy. Soviet bloc exports to Cuba declined by about 70% from 1989 to 1993,[25] the GNP declined by 35%, and the value of imports from all sources declined from $8 billion to $1.7 billion.[21]

In 1992 the US embargo was made more stringent with the passage of the Cuban Democracy Act. All US subsidiary trade, including trade in food and medicines, has since been prohibited. Ships from other countries are not allowed to dock at US ports for 6 months after

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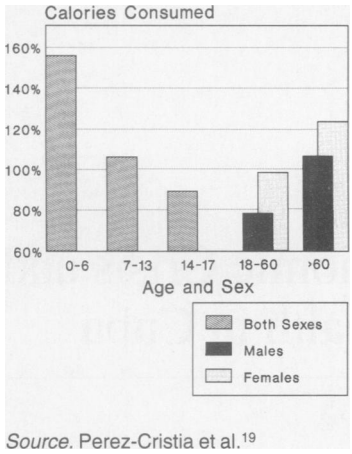


Source. Perez-Cristia et al.[19]

FIGURE 1—Calories consumed relative to recommended minimums, by age and sex, Cuba, 1992.

visiting Cuba, even if their cargoes are humanitarian goods. Pressure is being applied on other countries to stop trading with or providing humanitarian goods to Cuba.[1,26] Although embargo legislation since World War II has usually included exemptions for humanitarian goods,[1–4] the 1992 embargo legislation on Cuba does not permit sales of food and requires unprecedented "on-site verification" for the donation of medical supplies. The legislation does not state that Cuba cannot purchase medicines from US companies or their foreign subsidiaries; however, such license requests have been routinely denied.

According to the InterAmerican Human Rights Commission of the Organization of American States, these regulations violate international human rights accords, including the American Declaration of the Rights and Duties of Man, the Charter of the Organization of American States, and the Universal Declaration of Human Rights, to which the United States is a signator.[27] UN embargoes against Southern Rhodesia, South Africa, Iraq, Libya, Haiti, and the former Yugoslavia, and US embargoes against China, North Korea, Vietnam, Cambodia, Uganda, Iran, and Nicaragua, have each contained provisions for access to basic humanitarian goods. Even the 1946 boycott of Israel by the League of Arab States and the original US embargo against Cuba contained provisions for access to medicines and medical supplies. Yet "humanitarian" revisions to the US embargo regulations in 1995 and legislation to further tighten the embargo in 1996 have not changed the 1992 statutes.

The Embargo's Effects on Nutrition

About half of all protein and calories intended for human consumption were imported by Cuba in the 1980s. Importation of foodstuffs declined by about 50% from 1989 to 1993,[28] and per capita protein and calorie availability from all sources declined by 25% and 18%, respectively, from 1989 to 1992.[21] Only about 1200 calories are available from low-cost rationed distribution. The shortage of calories is exacerbated by the high proportion of all calories from refined sugar, which increased from 18% in 1989 to 26% in 1992.[19]

The nutritional situation continued to decline until unrestricted agricultural markets opened in late 1994. This private sector is estimated to provide about a 10% caloric supplement to the population (John Guy, Instituto de Nutricion, personal communication, July 1995). Children, women, and the elderly have been targeted for protection from nutritional deficits through rationing, public health education, workplace- and school-based feeding programs, and the promotion of urban gardening. As a result, sentinel site data show that the burden of calorie, protein, and micronutrient deficits falls predominately on adult men (Figure 1), whose caloric intake fell from 3100 in 1989 to 1863 in 1994.

The proportion of newborns weighing under 2500 g rose 23%, from 7.3% in 1989 to 9.0% in 1993,[29] reversing 10 years of gradual progress (Figure 2). Virtually all of the country's 150 000 annual births occur in health institutions. The fall in birthweights occurred despite a decline in other risk factors for low birthweight, including smoking, high fertility, and births to women under age 20.[30] Presumably the rate of low birthweights would have risen far more if preferential rationing and supplemental food programs were not in place. But although enrollment in supplemental feeding programs at maternity centers tripled from 1989 to 1992, food was still lacking and weight gains remained poor. Moreover, the ability to provide such supplements has been declining. Guaranteed daily milk rations previously reached all children through age 13 and all those over age 65.[28] Since 1992, however, these rations have been provided only to children up to age 7. More foods are now being procured by sending women to eat at nearby workers' cafeterias, setting aside milk and eggs from nearby state farms, and generating dollar donations from workers in tourist industries.

Data on weight and weight gain among pregnant women are routinely collected by clinicians and analyzed by provincial Ministry of Public Health authorities. From 1988 to 1993, the percentage of women with inadequate weight at pregnancy rose 18%, from 7.9% to 9.3%, and that of women with weight gains of less than 8 kg during pregnancy rose from 5.3% to 5.8%.[31,32] Anemia affected more than 50% of pregnant women and infants from 6 to 12 months of age in 1991.[20] Rates of anemia this high had not been seen since survey data were first collected in the early 1970s (John Guy, personal communication, July 1995).

Undernutrition is the major risk factor associated with an epidemic of optic neuropathy, which has affected more than 51 000 people since 1992.[19,33–35] Since late 1992, the entire population has been provided with monthly vitamin supplements to protect against this disorder. These vitamins are distributed door to door by family physicians. The few new cases diagnosed each month occur predominantly among those who fail to take the supplements.

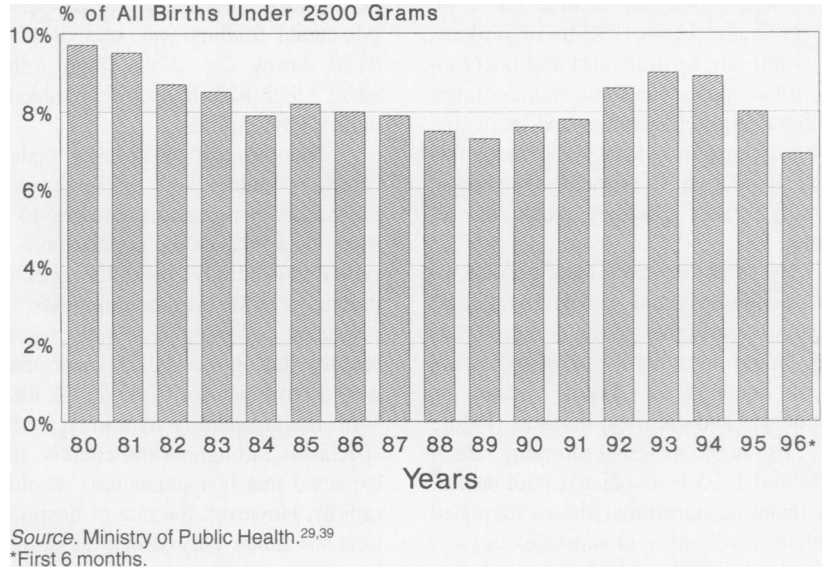
Cuba's Public Health Infrastructure and Medical Outcomes

Cuba's economic decline in the 1990s has been associated with a reduction in the materials and products needed to ensure clean water. From 1990 to 1994, the proportion of the population with domestic water connections declined for the first time, from 83% to 81% in urban areas and from 30% to 24% in rural areas.[36] During the same period, the portion of the population without access to potable water increased from 10% to 12%. The country's ability to produce chlorine declined, reducing the population covered by chlorinated water systems from 98% in 1988 to 26% in 1994.[36] During the first week of July 1994, only 13% of the country's 161 municipal water systems were chlorinated. Mortality from diarrheal diseases per 100 000 population rose from 2.7 in 1989 to 6.8 in 1993. An outbreak of Guillain-Barré syndrome secondary to enteric infections in areas that lost chlorination affected more than 200

people in 1994.[37] International donations and imports subsequently made up for the deficit in chlorine production so that during the first week of July 1995, 87% of the municipal water systems were chlorinated.[38]

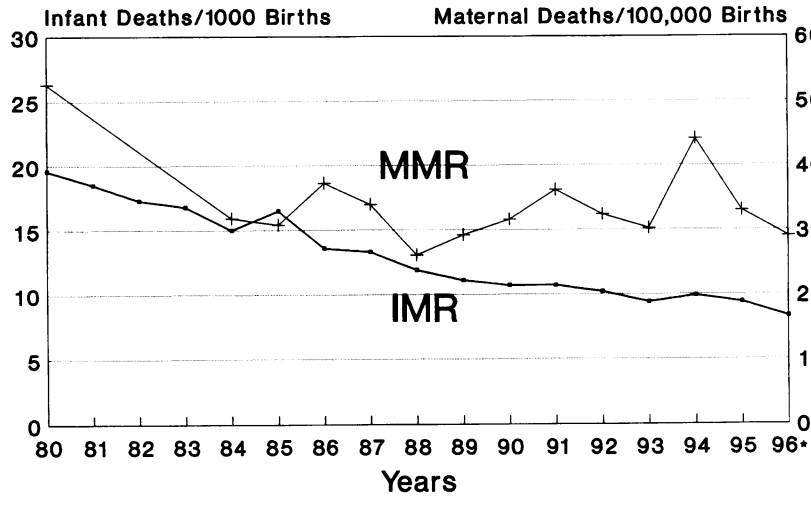
Poor nutrition and deteriorating housing and sanitary conditions are associated with a rising incidence of tuberculosis, from 5.5 per 100 000 in 1990 to 15.3 per 100 000 in 1994.[39] Cuba had a serious housing shortage in the 1980s and has built virtually no residential housing since.[40] Consequently, 15% of the country's housing stock is in poor condition, including 1000 homes that collapsed in Havana in 1994 and 4000 more that are in a precarious state today. Medication shortages were associated with a 48% increase in tuberculosis deaths from 1992 to 1993.[29] And from 1989 to 1993, these conditions were also associated with a 67% increase in deaths due to infectious and parasitic diseases (from 8.3 to 13.9 per 100 000 population) and a 77% increase in deaths due to influenza and pneumonia (from 23.0 to 40.7 per 100 000 population).

Lack of fats formerly imported from the Soviet Union resulted in a severe shortage in soap and soap products. Yearly per capita soap distributed via rationing in 1993 and 1994 amounted to four small bars (Maria Alvarado, Ministry of Small Industry, personal communication, June 1994). A lack of soap and other personal hygiene products is temporally associated with epidemics of pediculosis and scabies, which reached their peak in 1994 (Cabrera Perez, MD, Ministry of Public Health, personal communication, August 1995). Soap substitutes are made with caustic soda and other chemicals not normally found in the home. These chemicals cause burns and poisonings, which were extremely rare before 1989 (Alberto Ruiz, MD, personal communication, August 1995). From 1989 to 1993, deaths from unintentional poisonings jumped from 0.4 to 1.1 per 100 000 population.[39] During the week of June 13, 1994, six cases of unintended esophageal burns were reported to the epidemiologic surveillance system. Three of these were caused by caustic soda; the other three were caused by kerosene, which is commonly used to light homes during electricity blackouts. Inability to procure appropriate receptacles and the lack of appropriate labeling for homemade products both contribute to this problem. In November 1994, a large stock of homemade soap was sold throughout Pinar del Rio province in used rum bottles. Within a week, five cases of esophageal burns resulted from its accidental ingestion, and the Ministry of Public Health recalled the product.



Source. Ministry of Public Health.[29,39]
*First 6 months.

FIGURE 2—Percentage of births under 2500 g, Cuba, 1980 to 1996.



Source. Ministry of Public Health.[46]
*First 6 months.

FIGURE 3—Infant deaths per 1000 births and maternal deaths per 100 000 births, Cuba, 1980 to 1996.

Reductions in public transportation and employment have affected the country's morbidity profile. Motor vehicle–related deaths declined by 28% while bicycle-related deaths rose by 78% from 1989 to 1993.[39] An increase in small-scale, unsupervised agricultural and industrial production is responsible for new occupational exposures, including an epidemic of leptospirosis associated with small-scale rice production (Daniel Rodriguez Milord, MD, Ministry of Public Health, personal communication, August 1995).

Total mortality per 1000 inhabitants rose from 6.4 in 1989 to 7.2 in 1994. The increase was almost entirely due to a 15%

rise in mortality among those aged 65 years and older, accounting for 7500 excess deaths. From 1992 to 1993 alone, the death rate for influenza and pneumonia, tuberculosis, diarrhea, suicide, unintentional injuries, asthma, and heart disease each rose by at least 10% among this older population. In all other age groups, mortality rates remained stable or declined.

By 1994, however, deteriorating social conditions and medical facilities began to affect other population groups as well. Infant mortality rose slightly, owing to an increase in deaths caused by respiratory and diarrheal diseases (Figure 3). A rise in the maternal mortality rate in 1994 and 1995 is associated with declining maternal nutritional status, untreated vaginal infections, and shortages in parts for transportation and electricity during emergency deliveries. Both infant and maternal mortality reached their lowest level ever during the first 6 months of 1996.

Social disruption caused by declining public transportation, lack of repairs, rising unemployment and underemployment, and economic instability are widely perceived as reducing the quality of urban life.[41] Partially protected are the 21% of Cubans estimated to have access to domestic dollar incomes or to receive remittances from family overseas.[40] The disappearance of begging, prostitution, homelessness, and children without shoes in the 1960s had often been described as "achievements of the revolution" in years past. The reappearance of these phenomena are now being observed in major cities.

Yet, despite severe resource shortages, immunization coverage among children under 2 years of age against diphtheria, pertussis, tetanus, measles, tuberculosis, rubella, mumps, and meningococcal meningitis is still higher than 90%.[39] No cases of measles have been reported since 1993. In 1993, the World Health Organization certified Cuba as the first country to be free of the circulation of wild polio virus.[42,43]

Health Services

Continuing high educational levels, a national system of nutritional monitoring, and ready access to health services are key to protecting the population. Per capita funding for the health system rose each year since the 1960s until 1990, when it declined slightly. It rose again starting in 1993, in part as a result of the additional costs associated with the country's optic neuropathy epidemic.[39] However, while per capita funding was valued at about $150 during the 1980s, high inflation since 1990 has drastically reduced the value of these funds.

The number of hospital beds per capita is stable, and the high rate of physicians per capita continues to rise. More than 90% of the population is now served by family medicine specialists practicing in the local communities.[44] The physician per population ratio has risen steadily during the last 25 years; there is now a physician for every 214 Cubans.[39] With the availability of family medicine specialists throughout the country, it was expected that hospitalizations would fall rapidly. However, the rate of hospitalization has fallen only slowly as clinicians respond to shortages of food, transport, and medicines outside of hospitals by increasing preventive admissions and delaying discharges.

From 1990 to 1994, the number of laboratory exams provided in the country's 273 hospitals declined by 36% and the number of X rays declined by 75%. Cuba used to have an accessible national formulary of 1300 products; in recent years this was reduced to 889, and at least a third of these products are now unavailable at any time. Ambulance access has become scarce, as spare parts are increasingly difficult to obtain. Most ambulances were in working order in the 1980s; fewer than half worked in June 1994.[45]

Minimizing the Impact of the Embargo and the Economic Crisis on Vulnerable Groups

Cuba's approach to the economic crisis has been based on the dual policies of equity and priority for vulnerable groups. The government was already skilled at rationing food and other scarce goods prior to 1989. It has since used mass media and workplaces to promote the use of bicycles in place of cars, animals in place of tractors and trucks (for which fuel and parts are lacking), and the consumption of vegetable-based foods in place of scarce animal protein. In hospitals, rooming-in and other baby-friendly changes have been stressed to further promote exclusive breast-feeding. Eighty percent of all births now occur in such baby-friendly hospitals,[41] and the prevalence of breast-feeding at the time of postpartum discharge has risen from 63% in 1990 to 97% in 1994[32] (John Guy, personal communication, July 1995). Clinics, hospitals, and day care centers have helped popularize the use of herbal medicines to replace scarce pharmaceuticals. Distribution of food, clothing, and other scarce goods to target groups, including women, the elderly, and children, is facilitated via social service institutions, workplaces, preschools, and maternity homes. The number of children in preschools doubled and the use of maternity homes among those waiting to give birth rose by 26% from 1988 to 1993.[31,46]

The Effects of the Cuban Democracy Act

Although Cuba's economic crisis from 1989 to 1992 led to a rapid decline in imports, medical supplies were partially exempt. The sharp decline in medical imports occurred in 1992, following changes in the US embargo law. The dollar value of imports for health fell from $227 million in 1989 to $67 million in 1993. It recovered in part in subsequent years, reaching $104 million in 1995. Cuba was provided with licenses to import $719 million worth of goods from US subsidiary companies in 1991; 90% of this amount was used for food and medicine. From 1992 to 1995, a total of only $0.3 million was licensed for sale by the State Department in response to Cuban government requests to purchase hundreds of millions of dollars worth of food and medicine. At the same time, $63 million worth of goods were licensed as donations to Cuba. Altogether, this represents only a small fraction of the increased costs for food and medicine caused by sanctions.

Many medicines and medical products are produced only by US firms and thus can no longer be acquired.[47] These include the only curative treatment for some pediatric leukemias, film for some specialized x-ray machines used for breast cancer detection, US-made components of European respirators, and Spanish-language medical books from a firm recently bought by a US conglomerate. The only major non-US pacemaker manufacturer in the world was sold to a US firm in 1994. The sale included a clause that specified that, henceforth, sales to Cuba would no longer be guaranteed.

Today, medical products produced outside the United States cost Cuba an estimated 30%[48] more and require 50% to 400% higher shipping charges. Excess costs are primarily due to higher list prices

for specialized and relatively new medicines, particularly those produced under US patents in other countries. In addition, the delays and complexities of purchasing from producer and intermediary firms that fear US economic retribution add greatly to administrative costs. The 6-month docking rule alone is estimated to raise average shipping costs by about 10%. Non-US firms in such countries as Switzerland, France, Mexico, and the Dominican Republic have reportedly been threatened by US embassy personnel with commercial reprisals unless they canceled planned sales to Cuba of goods ranging from soap to milk.[49] These sales have been characterized by the US Commerce Department as contributing to "medical terrorism" on the part of the Cubans (Department of Commerce, written communication, July 1995, in which the department explained its denial of request for permission to sell $193 worth of x-ray machine replacement parts to Cuba.)

Cuban production of the 24 most common pharmaceutical products with imported primary materials is estimated to cost an additional $1 million per year due to the embargo (Carlos Azucari, Ministry of Foreign Trade, personal communication, February 1994). During the optic neuropathy epidemic of 1992 to 1993, $181 000 was spent to transport vitamins to Cuba; it is estimated that the cost would have been approximately $56 000 had these vitamins come from the United States. Total excess embargo-related costs to the health system are estimated by the Ministry of Foreign Trade at $45 million per year.[50] A Cuban study suggests that the embargo cost Cuba the equivalent of $2 billion from 1990 to 1993; half of those costs were attributed to the conditions of the 1992 legislation with its additional restrictions that further tightened the embargo.[48]

Discussion

Since the 1960s, health sector investments in Cuba have been made via a strong public sector also dedicated to equitable food distribution, public education, and income equalization.[51] Enviable health and medical care indicators were produced by this system despite the US embargo. Yet in the past 4 years, the combined effect of severe economic decline and a far more stringent embargo have severely tested the capacity and flexibility of that system. Equitable distribution of scarce goods and priority programs for vulnerable populations help explain the apparent contradiction between a massive decline in available resources, a deteriorating public health infrastructure, and rising incidence rates for infectious diseases and low birthweight on the one hand, and continued low rates of infant mortality on the other (Figure 3).

The medical system is still able to provide near universal coverage and to ensure the continuance of low mortality among those under 65 years of age even in the face of rising health threats. Yet despite the highly efficient use of health goods, these goods can no longer be stretched to meet the needs of the entire population. Preferential access to essential goods for women and children is exemplary but has resulted in the creation of new vulnerable groups among adult men and the elderly. By reducing access to medicines and medical supplies from other countries and preventing their purchase from US firms, the embargo contributes to this rise in morbidity and mortality. □

Acknowledgments

This study was supported in part by Samuel Rubin Foundation, New York, NY.

We thank Dr Antonio Granda Ibarra, Dr Pedro Llerena Fernandez, Dr Abelardo Ramirez, Dr Jose Jardines, and Dr Daniel Rodriguez Milord for their assistance in collecting and analyzing the data for this article.

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